

Listing and Amendments to the Claims

This listing of claims will replace the claims that were published in the PCT Application:

1. (currently amended) An electronic system ~~(100)~~, comprising:
a plurality of function cards ~~(138-1 through 138-M)~~, each having at least one programmable device ~~(142-1 through 142-M)~~ residing thereon; and
a configuration control card ~~(140)~~ coupled to each one of said plurality of function cards ~~(138-1 through 138-M)~~; wherein said configuration control card ~~(140)~~ configures said at least one programmable device ~~(142-1 through 142-M)~~ residing on each one of said plurality of function cards ~~(138-1 through 138-M)~~.
2. (currently amended) The apparatus of claim 1, and further comprising:
a memory subsystem ~~(146)~~ residing on said configuration control card ~~(140)~~;
wherein said configuration control card ~~(140)~~ configures said at least one programmable device ~~(142-1 through 142-M)~~ residing on each one of said plurality of function cards ~~(138-1 through 138-M)~~ using configuration information stored in said memory subsystem ~~(146)~~.
3. (currently amended) The electronic system of claim 2, wherein said configuration control card ~~(140)~~ further comprises:
a main controller ~~(148)~~ coupled to said memory subsystem ~~(146)~~ and said plurality of function cards ~~(138-1 through 138-M)~~;
said main controller ~~(148)~~ configuring each one of said plurality of function cards ~~(138-1 through 138-M)~~ using said configuration information stored in said memory subsystem ~~(146)~~.
4. (currently amended) The apparatus of claim 3, wherein each one of said at least one programmable device ~~(142-1 through 142-M)~~ residing on each one of said plurality of function cards ~~(138-1 through 138-M)~~ is a field programmable gate array ("FPGA").

5. (currently amended) The apparatus of claim 3, and further comprising:
a peripheral controller ~~(144-1 through 144-M)~~ residing on each one of said plurality of function cards ~~(138-1 through 138-M)~~;

each one of said peripheral controllers ~~(144-1 through 144-M)~~ attending to: (1) forwarding requests for configuration, originated by said programmable device ~~(142-1 through 142-M)~~ residing with said peripheral controller ~~(144-1 through 144-M)~~ on one of said function cards ~~(138-1 through 138-M)~~, to said main controller (148); and (2) attending to forwarding configuration information, provided by said main controller (148) to said programmable device ~~(142-1 through 142-M)~~ residing with said peripheral controller ~~(144-1 through 144-M)~~ on one of said function cards ~~(138-1 through 138-M)~~.

6. (currently amended) The apparatus of claim 2, wherein said plurality of function cards ~~(138-1 through 138-M)~~ further comprises:

a plurality of function cards ~~(136-1 through 136-N)~~ of a first type, said first type of function cards ~~(136-1 through 136-N)~~ requiring a first set of instructions for configuration thereof;

a plurality of function cards ~~(138-1 through 138-M)~~ of a second type, said second type of function cards ~~(138-1 through 138-M)~~ requiring a second set of instructions for configuration thereof;

said first set of instructions stored in a first area ~~(149-1)~~ of said memory subsystem (146) and said second set of instructions stored in a second area ~~(149-2)~~ of said memory subsystem (146);

wherein said configuration control card (140) configures said plurality of function cards ~~(136-1 through 136-N)~~ of said first type using said first set of instructions stored in said first area ~~(149-1)~~ of said memory subsystem (146) and said configuration control card (140) configures said plurality of function cards ~~(138-1 through 138-M)~~ of said second type using said second set of instructions stored in said second area ~~(149-2)~~ of said memory subsystem (146).

7. (currently amended) The apparatus of claim 6, wherein said configuration control card ~~(140)~~ further comprises:

a main controller ~~(148)~~ coupled to said memory subsystem ~~(146)~~, said plurality of function cards ~~(136-1 through 136-N)~~ of said first type and said plurality of function cards ~~(138-1 through 138-M)~~ of said second type;

said main controller ~~(148)~~ configuring each one of said plurality of function cards ~~(136-1 through 136-N)~~ of said first type using said first set of instructions stored in said first area ~~(149-1)~~ of said memory subsystem ~~(146)~~; and

said configuration control card ~~(140)~~ configuring each one of said plurality of function cards ~~(138-1 through 138-M)~~ of said second type using said second set of instructions stored in said second area ~~(149-2)~~ of said memory subsystem ~~(146)~~.

8. (currently amended) The apparatus of claim 7, and further comprising:

a peripheral controller ~~(144-1 through 144-M)~~ residing on each one of said plurality of function cards ~~(136-1 through 136-N, 138-1 through 138-M)~~;

each one of said peripheral controllers ~~(144-1 through 144-M)~~ attending to forwarding requests for configuration, originated by said programmable device ~~(142-1 through 142-M)~~ residing with said peripheral controller ~~(144-1 through 144-M)~~ on one of said function cards ~~(136-1 through 136-N, 138-1 through 138-M)~~, to said main controller ~~(148)~~; and

each one of said peripheral controller ~~(144-1 through 144-M)~~ further attending to forwarding configuration information, provided by said main controller ~~(148)~~ to said programmable device ~~(142-1 through 142-M)~~ residing with said peripheral controller ~~(144-1 through 144-M)~~ on one of said function cards ~~(136-1 through 136-N, 138-1 through 138-M)~~.

9. (currently amended) A broadcast router ~~(100)~~, comprising:

a first router card ~~(134a)~~ having an input side, an output side and at least one programmable device ~~(142-1 through 142-M)~~ residing thereon;

a plurality of input cards ~~(136-1 through 136-N)~~, each one of said plurality of input cards ~~(136-1 through 136-N)~~ coupled to said input side of said router card ~~(134a)~~ and having at least one programmable device ~~(142-1 through 142-M)~~ residing thereon;

a plurality of output cards (~~138-1 through 138-M~~), each one of said plurality of output cards (~~138-1 through 138-M~~) coupled to said output side of said router card (~~134a~~) and having at least one programmable device (~~142-1 through 142-M~~) residing thereon; and

a configuration control card (~~140~~) coupled to said router card (~~134a~~), each one of said plurality of input cards (~~136-1 through 136-N~~) and each one of said plurality of output cards (~~138-1 through 138-M~~), said configuration control card (~~140~~) configuring said at least one programmable device (~~142-1 through 142-M~~) residing on said router card (~~134a~~), each one of said plurality of input cards (~~136-1 through 136-N~~) and each one of said plurality of output cards (~~138-1 through 138-M~~).

10. (currently amended) The apparatus of claim 9, and further comprising:

a second router card (~~134b~~) having an input side, an output side and at least one programmable device (~~142-1 through 142-M~~) residing thereon;

each one of said plurality of input cards (~~136-1 through 136-N~~) further coupled to said input side of said second router card (~~134b~~); each one of said plurality of output cards (~~138-1 through 138-M~~) further coupled to said output side of said second router card (~~134b~~);

said configuration card further configuring said at least one programmable device (~~142-1 through 142-M~~) residing on said second router card (~~134b~~).

11. (currently amended) The apparatus of claim 9, and further comprising:

a memory subsystem (~~146~~) residing on said configuration control card (~~140~~), said memory subsystem (~~146~~) including a first memory area (~~149-1~~), a second memory area (~~149-2~~) and a third memory area (~~149-3~~);

wherein said configuration control card (~~140~~) configures said at least one programmable device (~~142-1 through 142-M~~) residing on each one of said plurality of input cards (~~136-1 through 136-N~~) using configuration information stored in said first area (~~149-1~~) of said memory subsystem (~~146~~), configures said at least one programmable device (~~142-1 through 142-M~~) residing on said first router card (~~134a~~) using configuration information stored in said second area (~~149-2~~) of said memory subsystem (~~146~~), and configures said at least one programmable device (~~142-1 through 142-N~~) residing on each one of said plurality of output cards (~~138-1 through~~

~~138-M)~~ using configuration information stored in said third area ~~(149-3)~~ of said memory subsystem ~~(146)~~.

12. (currently amended) The apparatus of claim 7, wherein each one of said programmable devices ~~(142-1 through 142-N)~~ residing on each one of said plurality of input cards ~~(136-1 through 136-N)~~, said first router card ~~(134a)~~, and each one plurality of output cards ~~(138-1 through 138-M)~~ is a field programmable gate array ("FPGA").

13. (currently amended) The apparatus of claim 12, wherein said configuration control card ~~(140)~~ further comprises:

a memory subsystem ~~(146)~~, said memory subsystem ~~(146)~~ including a first memory area ~~(149-1)~~, a second memory area ~~(149-2)~~ and a third memory area ~~(149-3)~~;

a main controller ~~(148)~~ coupled to said memory subsystem ~~(146)~~, each one of said plurality of input cards ~~(136-1 through 136-N)~~, said first router card ~~(134a)~~, and said plurality of output cards ~~(138-1 through 138-M)~~;

said main controller ~~(148)~~ configuring said at least one FPGA ~~(142-1 through 142-M)~~ of each one of said plurality of input cards ~~(136-1 through 136-N)~~ using a first set of instructions stored in said first area ~~(149-1)~~ of said memory subsystem ~~(146)~~, configuring said at least one FPGA ~~(142-1 through 142-M)~~ of said first router card ~~(134a)~~ using a second set of instructions stored in said second area ~~(149-2)~~ of said memory subsystem ~~(146)~~ and configuring said at least one FPGA ~~(142-1 through 142-M)~~ of each one of said plurality of output cards ~~(138-1 through 138-M)~~ using a third set of instructions stored in said third area ~~(149-3)~~ of said memory subsystem ~~(146)~~.

14. (currently amended) The apparatus of claim 13, and further comprising:

a second router card ~~(134b)~~ having an input side, an output side and at least one FPGA ~~(142-1 through 142-M)~~ residing thereon;

each one of said plurality of input cards ~~(136-1 through 136-N)~~ further coupled to said input side of said second router card ~~(134b)~~;

each one of said plurality of output cards ~~(138-1 through 138-M)~~ further coupled to said output side of said second router card ~~(134b)~~;

said main controller (148)-configuring said at least one FPGA (~~142-1 through 142-M~~) of said second router card (~~134b~~)-using said second set of instructions stored in said second area (~~149-2~~) of said memory subsystem (146).

15. (currently amended) The apparatus of claim 14, and further comprising:

a peripheral controller (~~144-1 through 144-M~~)-residing on each one of said plurality of input cards (~~136-1 through 136-N~~), said first and second router cards (~~134a and 134b~~)-and each one of said plurality of output router cards (~~138-1 through 138-M~~);

each one of said peripheral controllers (~~144-1 through 144-M~~)-attending to forwarding requests for configuration, originated by said FPGA (~~142-1 through 142-N~~)-residing with said peripheral controller (~~144-1 through 144-M~~)-on one of said plurality of input cards (~~136-1 through 136-N~~), said first router card (134a), said second router cards (~~134b~~) or one of said output cards (~~138-1 through 138-M~~), to said main controller (148); and

each one of said peripheral controller (~~144-1 through 144-N~~)-further attending to forwarding configuration information, provided by said main controller (148), to said FPGA (~~142-1 through 142-M~~)-residing with said peripheral controller (~~144-1 through 144-M~~)-on one of said input cards (~~136-1 through 136-N~~), said first router card (134a), said second router card (~~134b~~)-or one of said output cards (~~138-1 through 138-M~~).

16. (currently amended) For a broadcast router (100) having at least one card (~~134a through 134b, 136-1 through 136-N, 138-1 through 138-M~~) on which one or more configurable devices (~~142-1 through 142-M~~)-reside, a method for configuring said broadcast router (100), comprising:

issuing a first request for configuration, said first request for configuration issued by a first configurable device (~~142-1 through 142-M~~)-residing on a first one of said at least one card (~~134a through 134b, 136-1 through 136-N, 138-1 through 138-M~~);

retrieving configuration information from a shared configuration repository (~~146~~); and

configuring said requesting configurable device ~~(142-1 through 142-M)~~ using said configuration information retrieved from said shared configuration repository ~~(146)~~.

17. (currently amended) The method of claim 16, and further comprising:

issuing a second request for configuration, said second request for configuration issued by a second configurable device ~~(142-1 through 142-M)~~ residing on a second one of said at least one card ~~(134a through 134b, 136-1 through 136-N, 138-1 through 138-M)~~;

retrieving said configuration information from said shared configuration repository ~~(146)~~; and

configuring said second requesting configurable device ~~(142-1 through 142-M)~~ using said configuration information retrieved from said shared configuration repository ~~(146)~~;

wherein the same configuration information is used to configure said first and second requesting configurable devices ~~(142-1 through 142-M)~~.

18. (currently amended) The method of claim 16, wherein said broadcast router ~~(100)~~ includes at least one card ~~(136-1 through 136-N)~~ of a first type and at least one card ~~(138-1 through 138-M)~~ of a second type, each one of said at least one card ~~(136-1 through 136-N, 138-1 through 138-M)~~ of said first and second types having at least one configurable device ~~(142-1 through 142-M)~~ residing thereon, and further comprising:

storing a first set of instructions in a first area ~~(149-1)~~ of said shared configuration repository ~~(146)~~;

storing a second set of instructions in a second area ~~(149-2)~~ of said shared configuration repository ~~(146)~~;

retrieving said first set of instructions if said requesting configurable device ~~(142-1 through 142-M)~~ resides on said at least one card ~~(136-1 through 136-N)~~ of said first type;

retrieving said second set of instructions if said requesting configurable device ~~(142-1 through 142-M)~~ resides on said at least one card ~~(138-1 through 138-M)~~ of said second type.

if said requesting configurable device ~~(142-1 through 142-M)~~ resides on said at least one card ~~(136-1 through 136-N)~~ of said first type, configuring said requesting configurable device ~~(142-1 through 142-M)~~ using said first set of instructions retrieved from said first area ~~(149-1)~~ of said shared configuration repository ~~(146)~~; and if said requesting configurable device ~~(142-1 through 142-M)~~ resides on said at least one card ~~(138-1 through 138-M)~~ of said second type, configuring said requesting configurable device ~~(142-1 through 142-M)~~ using said second set of instructions retrieved from said second area ~~(149-2)~~ of said shared configuration repository ~~(146)~~.

19. (currently amended) The method of claim 16, wherein said broadcast router ~~(100)~~ further comprises a configuration control card ~~(140)~~ on which a main controller ~~(148)~~ and said shared configuration repository ~~(146)~~ reside, and further comprising:

said main controller ~~(148)~~ detecting said first request for configuration issued by said first one of said one or more configurable devices ~~(142-1 through 142-M)~~ residing on said first one of said at least one card ~~(134a through 134b, 136-1 through 136-N, 138-1 through 138-M)~~;

said main controller initiating a configuration algorithm upon expiration of a time period subsequent to said detected first request for configuration, said time period allowing additional ones of said one or more configurable devices ~~(142-1 through 142-M)~~ to request configuration before said configuration algorithm is initiated.

20. (currently amended) The method of claim 19, wherein said configuration algorithm further comprises: selecting a first configurable device residing on one of said at least one cards (~~134a through 134b, 136-1 through 136-N, 138-1 through 138-M~~) of said broadcast router (100);

querying said selected configurable device as to whether it desires configuration;

if said selected configurable device indicates that it desires configuration, propagating configuration information to said selected configurable device;

selecting a next configurable device residing on one of said at least one cards (~~134a through 134b, 136-1 through 136-N, 138-1 through 138-M~~) of said broadcast router (100); and

repeating said querying, propagating and selecting steps until all of said one or more configurable device (~~142-1 through 142-M~~) have been queried.